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AUTHOR Byrnes, Francis C.
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ABSTRACT

Agricultural extension systems in the developing countries have, with few exceptions, failed to increase agricultural productivity adequately. Many of the change agent failures can be traced to their lack of credibility. They are not trusted or respected because farmers have learned that many are not technically competent. Good agricultural extension agents should be able to: (1) test and adapt new technology; (2) diagnose the farmer's production problems; and (3) teach the farmer how to correct problems and increase yields. In 1964, the International Rice Research Institute launched a series of rice production training programs to develop these competencies. Teams of rice workers from 24 nations have been prepared to adapt these approaches for training hundreds and thousands of their colleagues, who in turn teach farmers. These programs, which emphasize intensive on-the-paddy experience, have been successful because they are based on the precept "you can't teach what you don't know." A program to produce livestock production specialists is underway. Over the past two years, two crop production specialist training programs have been completed. Several obstacles must be overcome if this type of training is to spread: (1) the need is not readily admitted or recognized by decision makers or potential trainees; (2) returned trainees have difficulty organizing programs to train others; (3) more research must be conducted and decisions made about the training process. References are provided. (KM)

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CREDIBILITY AND COMPETENCE: KEY CHARACTERISTICS OF DEVELOPMENT COMMUNICATORS[1]

Francis C. Byrnes[2]

Reports and field observations document and demonstrate the inability of many agricultural change agents or change systems in the developing countries to bring about significant or rapid adoption of improved technology among farmers and their families (1, 2).

Administrators and analysts offer many reasons for this (3). Some blame poor or inadequate communication. Others point to the alleged traditional resistance and ignorance of the farmer. Still others fault the organizational structure, or the lack of significantly improved technology to extend.

The developed nations and institutions in the developing world have spent million of dollars to train personnel, to provide advisors, and to furnish funds so that these countries might establish or reorganize what we generally call systems of agricultural extension. Except for a few notable exceptions (4), these efforts have failed to increase agricultural productivity to the extent expected and necessary.

One factor, now generally recognized, is the fallacy of trying to export and transplant the United States model of agricultural extension (5, 6), but this is another issue and we do not choose to discuss it here.

Accepting the idea that the "success variables related to extension systems in traditional cultures are not yet adequately identified" (8), our observations in Asia and Latin America lead to the conclusion that many of the change agent failures trace to the fact, in communication terms, that they lack credibility. They do not

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[2] Dr. Byrnes is Leader, Training and Communication, Centro Internacional de Agricultura Tropical, Apartado Aereo 67-13, Cali, Colombia, S. A.

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command respect, attention, trust, or acceptance because farmers have learned, through the years, that many are not technically competent, lack farming background and experience, have little to extend of economic or technical value, and, in addition, are deficient in the communication practices or skills the circumstances require.

When training provides the change agent with the needed skills and research the sound technology to extend, he "functions very much as a management input, a risk reducer, and a vital link with institutional sources of credit, modern inputs, and services. The ideal farm management technician, from the farmer's view, is one who is competent, has frequent contact with farmers, and is a good adviser or consultant" (7).

The goal of this paper is to outline and analyze some deliberate efforts to produce the kind of agricultural change agents described----agents with the competencies the developing nations seem to need. Such agents, in action, help to increase agricultural productivity because they are able (a) to test and adapt new technology in specific farming situations, i.e., in the farmer's own backyard, (b) to diagnose the farmer's production problems, and (c) to teach the farmer how to correct problems and increase yields. Frequently, they do much more, such as help him obtain credit, advise him on management, and suggest ways to store or market his crop.

As a result, the credibility of such an agent and his organization is improved or restored. Through improved competencies, the change agent acquires and maintains his credibility. Competency fosters credibility.

Previously, we have presented a competency model for extension (2), indicating that at least five major competencies are required, i.e., technical (knowledge of the subject matter), scientific (how to obtain or validate knowledge), economic (how to determine cost/benefit ratios, for instance), farming (how to grow the crop) and communication (how to teach or to share with others what you know).

Development of these competencies was the goal of a series of rice production training programs launched in 1964 at the International Rice Research Institute in the Philippines. Through these programs, teams of rice workers from some 24 nations have been prepared to adapt these approaches, upon returning to their own countries, for the training of hundreds and thousands of their colleagues, who in turn use similar techniques to teach farmers. Through 1971, 211 persons from 24 countries had been graduated from seven courses (9).

Ceylon and Pakistan provide good examples of successful employment of returned trainees. By September 1971, the 15 Ceylonese trained since March 1968 had enrolled some 8,000 extension workers and farmers in rice production programs patterned on the IRRI model (10). In Pakistan, the 13 graduates of the IRRI program had an active role in the overall campaign through which rice production increased by nearly 70 percent in a 5-year period (11). Direct followup technical and administrative links with IRRI undoubtedly contributed to near maximum utilization of the trainees in both instances.

What, if anything, made these IRRI programs different or, if not different, successful? Actually, the formula was and is rather simple: You can't teach what you don't know. This idea was coupled with another that getting farmers to adopt new technology is primarily an educational goal, requiring instructional techniques rather than promotion, advocacy and persuasion (12).

Consequently, we defined rigorously what the change agent needed to know to be a successful instructor, established behavioral change objectives to be achieved, developed methods and created opportunities for the trainees to learn, provided guidance and stimulation, and, finally, tested for achievement of the specified objectives. In all of this, Mager's book, Preparing Instructional Objectives, was our guide (13).

These programs continue to emphasize active participation by the learner, with about one-half of the time actually being spent producing rice in the field. The balance of the time is occupied with problem-solving assignments, reading and

discussion exercises, preparation of and administration of diagnostic tests, attendance at seminars, field trips, and interviews with scientists in the laboratory and field. These activities help to keep the learning content current and relevant, while the self-examination exercises are excellent motivators. Through them trainees learn what they know and don't know.

Success is directly related to the quality, number and involvement of the instructional staff. These programs, while drawing on the scientists for much of the content and instruction, require a full-time coordinator as well as at least one junior instructor for each 7 to 10 persons while working in the field. The principal tasks of the coordinator are to help the scientists improve their teaching techniques, to make sure the trainees grasp the relevance of what is being taught, and to provide continuity.

Since moving to Colombia in 1968, we have had a number of opportunities to adapt and test the approaches developed in the Philippines in the conduct of more complicated training programs.

Currently, the second program to produce livestock production specialists is underway with 20 men from 7 countries enrolled. After two months of intensive testing and instruction in a wide range of subjects, including animal health, nutrition, pasture improvement, ranch management, sanitation, engineering, economics and communication, the trainees, in teams of two, will spend nine months living on ranches on the North Coast of Colombia.

Under supervision, they will diagnose the production problems of the particular ranch, design a package of improved practices and begin implementing them through instruction of the owner, foreman and laborers. As time permits, they also will help neighboring ranchers, organize field days and tours, and prepare plans and materials for use in their own countries.

Over the past two years, we have completed two crop production specialist training programs. Trainees learned how to apply production principles in growing six field crops — corn, rice, cassava, sorghum, soybeans and field beans — and

some 15 vegetable crops. In so doing, teams of four individuals each managed the production on 15 hectares of land while at the same time spending two days a week working with small farmers in a neighboring community. On these farms, they conducted small scale replicated trials to validate new technology. Overall, about half of the course time was spent in the field, the balance in lecture discussions on economics, communication, science, administration and training as well as the relevant technical subjects.

Economics, communication and other social sciences are presented in an integrated approach designed to help the trainee gain insight on the farmer's decision making process and how it can be influenced. Such an approach helps trainees to recognize that the behavioral changes instrumental in agricultural development "are not confined to farm operators nor even to rural people as a whole" (14). They learn the importance of taking into account a broad system which includes agricultural input suppliers, credit agencies, buyers and processors of farm products, and the people in the community in which the process operates.

At the beginning of one program, we made the trainees available to the agricultural economists to serve for two months as interviewers in a study of 300 small corn farmers in Colombia. After a week of intensive training in interview techniques, the trainees did an excellent job. An unexpected by-product was the motivation and insight the trainees developed with respect to the problems of small farmers. For most, this was the first time they had been on such farms, or talked with or listened to farmers. We now seek ways to build similar experiences into future programs.

It would be misleading to leave the impression that these approaches to agricultural training are new or unique. While they are old, they are rarely used. One of the most effective institutions in Latin America is the Escuela Agricola Panamericana in Zamorano, Honduras, where similar training has been offered since 1941. Graduates of this school's 3-year curriculum are in great demand. We currently have three on our CIAT training staff.

The Dutch government for several years has sponsored a dairy production training program at Santa Catalina, Ecuador, which follows similar principles. A university in Brazil has keyed its programs to the problems of increasing farm products through improving the agricultural skills of its gradutes.

If this type of training is to spread, and we believe it must if agricultural productivity goals are to be met, we must recognize and find solutions for several issues or obstacles, as follows:

1. The need for such training is not readily admitted or recognized by decision makers or potential trainees. There is a demand, instead, for academic training leading to advanced degrees which, in turn, lead to higher positions in the organization. Once a few individuals with production training return home and are allowed to perform, then decision makers develop a desire for more. The initial problem is creating a market for a new product, and the process is complicated by the fact that the new product is a human being with his own feelings, ambitions and expectations.

A few institutions have expressed an interest in developing a master's program in production. If this materializes, the degree issue will be resolved for some. Over time, by training some staff members from undergraduate institutions, we hope to see production training become a regular part of undergraduate education in agriculture. This is now happening in at least four institutions in Colombia.

2. Returned trainees have difficulty using their training and particularly in organizing situations where they can train others. Graduates often find it difficult to contribute professionally upon return to their countries because (a) their assignments are not appropriate, (b) they do not receive adequate financial or administrative support, (c) they lack seniority status, (d) others may view their newly acquired capability and knowledge as a threat to the status quo, (e) suitable institutional frameworks are missing, (f) adequate supervision, stimulation and guidance are lacking, and (g) they are burdened with other duties and do not have sufficient time to perform as they were trained.

Correction of these situations demands considerable attention by the training institution, beginning with the recruitment and selection of trainees. Decisions makers need to be consulted and made aware of the conditions under which the training will multiply and return dividends. This also necessitates continuing followup and support with materials as well as visits.

3. Aside from the technical and methodological training, the program, if it is to be successful, must develop or stimulate in each trainee a burning sense of personal commitment, responsibility and urgency with respect to his role in the development process. He will not acquire or develop this unless it is present in his instructors and pervades the insitute where he receives his training.

4. Once trained, it is important to keep the graduate up-to-date. This can be accomplished through a regular flow of printed materials, personal correspondence, visits, and if possible, periodic short courses and short-term assignments in other countries.

5. There also is the question of how many persons to train. To what extent is the success of returned trainees related to a "critical mass" concept? In other words, what is the minimum number of trained people necessary before we can expect any significant progress? What patterns of disbursement of this personnel will be most effective? What can be done to meet immediate needs while at the same time providing for long-term progress? Ready answers to such questions do not exist, yet daily someone makes operational decisions relating to these issues.

These questions remind us that we need more systematic and unbiased information about the entire process of training---selection, content, methods, and utilization (15). While the approaches outlined here rank high in face validity, how adequate are they? Would other approaches be more efficient or more effective?

For some reason, the training aspects of the agricultural development process have failed to attract much solid research attention. Perhaps the initial

fault lies with the trainers and their organizations. Until recently, most of these have evidenced little interest in or offered little support for studies in depth of their training activities.

Given the propositions set forth in this paper, one might well try to determine the kinds of training which produce the most effective change agents. Another question: How effective are "train the trainer" programs? At what stage does the content attenuate to the extent that what comes out at the end is a meaningless exercise?

While we believe strongly in what we are doing, and why we do it, we maintain an open mind to other possibilities. Within a year, we expect to be able to undertake one or more studies of our training operations. In the meantime, we would seriously consider cooperating on a well-designed study proposal for research in this area. Such studies are overdue. The long range consequences and implications for agricultural educational institutions in the developing countries would be significant.

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